

## **REMARKS**

Applicants have amended claims 1, 16 and 22 to expedite prosecution. Specifically, the claims have been amended to make explicit that which was implicit, namely that the method comprises obtaining a ferment of active bacteria and spraying the ferment with active bacteria on the fertilizer thereby resulting in a fertilizer with no lag time upon rehydration. Support for the amendment can be found throughout the specification and examples. Accordingly, no new matter has been introduced by the amendments and their entry is respectfully requested.

### ***Claim Rejections - 35 USC § 103(a)***

Claims 1-9, 11-16 and 18-22 were rejected under 35 USC § 103(a) over Ergashev et al. (SU 937436; allegedly published on 6/23/82)(“Ergashev/Kuznetsova”); Karner (DE 19523334; allegedly published on 7/4/94)(“Karner-1”); or Karner (EP 1186581; allegedly published on 3/13/2002)(“Karner-2”). Applicants note that the reference indicated by the Office as Ergashev et al., appears to be by Kuznetsova et al. To simplify the review of the Amendment, Applicants will address the cited reference citing to both names, Ergashev/Kuznetsova. The Office admitted that the references do not teach application rate of the fertilizer being less than 3 liters bacterial ferment per ton of granular fertilizer. However, the Office takes the position that this would have been an obvious optimization step only. The Office contended that the cited prior art “teaches a method of applying to a granulated fertilizer bacteria.” The Office also contended that “since the preparation of the granule in the prior art and instant claims is the same, it is automatic that bacteria in all inventions would have no lag time upon re-hydration.”

Applicants respectfully traverse the rejection for the following reasons.

None of the cited references teach the elements of (1) spraying **active bacteria** or (2) **collecting** the bacteria from fermentation **prior to bacteria reaching dormant stage**.

Applicants have amended claim 1 to make explicit that these two steps are required of the method. Therefore, as these elements are missing from the newly cited references the references cannot render the claims obvious.

Moreover, Applicants respectfully submit that they have already before addressed the fact that it is **not** “automatic that bacteria in all inventions would have lag time upon re-hydration.” Applicants have also described why bacteria sprayed on the fertilizer in the prior art cannot be considered active.

For example, this issue was addressed in length in the Amendment filed on January 27, 2010. The arguments were considered persuasive by the Office because the obviousness rejections presented in the October 29, 2009 Office Action were withdrawn. In the October 29, 2009 Office Action, the Office

cited Choi and Mehta with essentially identical arguments as set forth here with respect to Ergashev, Karner-1 and Karner-2 here. In response, Applicants showed that, in addition to not teaching how the bacteria are to be mixed with the fertilizer the references also do not teach that the ferment must be obtained from a fermentation stopped before bacteria get into a dormant stage and that the ferment is being used at a rate of at most 3 liters of ferment per ton of fertilizer. This argument applies equally to the previously addressed Choi and Mehta and the presently cited Ergashev/Kuznetsova, Karner-1 and Karner-2.

Therefore, like Choi or Mehta, also Ergashev/Kuznetsova, Karner-1 and Karner-2 fail to teach several of the critical elements of the invention.

Moreover, contrary to the Examiner's allegation, a skilled artisan would not have expected a simple mixing of ingredients based on Choi or Mehta, or similarly based on Ergashev/Kuznetsova, Karner-1 and Karner-2, to result in a product of superior performance.

As explained in the January 27, 2010 Amendment, the Declaration by M. Alexandre Blais, which was submitted on March 6, 2008 ("Declaration"), sets forth that the applicants discovered and the present application teaches and claims, a method of producing a fertilizer with specific and unexpected advantages over the fertilizers of prior art. Namely, the claimed method comprises the step of mixing a granular fertilizer with a ferment comprising active bacteria. To obtain active bacteria they must be obtained from a fermentation reaction that is stopped before bacteria get into a dormant stage (stationary stage seen in the growth curve attached to the Amendment dated January 27, 2010 as Exhibit A). The specific requirement of bacteria being harvested prior to entering dormant stage provides a distinct advantage because it will prevent the bacteria from having a lag time upon re-hydration. In order to obtain such active, no-lag time bacterial composition, ferments also must be blocked by cold or other means so as to retain their full activity at the top of the growth chart (see e.g., [0045] in the specification). These specific method steps therefore confer a distinct and unexpected advantage to the methodology described and claimed in the present application, since no lag time is observed upon application of the fertilizer.

Therefore, the allegation that the claimed fertilizer is a result of simple mixing ingredients and the end product provides an expected result and that "it is automatic that bacteria in all inventions would have no lag time upon re-hydration" as alleged in the Office Action of November 24, 2010, ignores the facts already previously brought to the attention of the Office. The inventors have discovered a new way of making a fertilizer with bacteria that are instantly active which is not described either in Choi or Mehta or in Ergashev/Kuznetsova, Karner-1 or Karner-2.

Moreover, the elements that are not taught by Ergashev/Kuznetsova, Karner-1 and Karner-2, like they were also not taught by Choi or Mehta, are **not mere optimization** steps because a skilled artisan would not have expected a bacteria to be instantly activated if one merely mixed bacteria at any growth phase as set forth in the previously submitted Declaration.

Additional evidence of the commercial value of this invention was also provided in the Declaration showing that 150,000 tons of fertilizer produced and sold using the present method in Canada and Vietnam. Had the skilled artisans considered this an obvious method or that other fertilizers would have had the same properties, no one would have been willing to buy or pay for this novel type of fertilizer.

Further, the fertilizer produced by the method described and claimed in the present application uses a rate of at most 3 liters of ferment per ton of fertilizer. As discussed before, spraying the fertilizer at a higher rate will cause the fertilizer to partly solubilize, liberating nitrogen concentrated at the surface of the fertilizer, in the vicinity of the bacteria, which is toxic to the bacteria in such concentrated micro-environment. Therefore, as has already previously been described to the Office, Applicants discovered that the **rate of application is a critical parameter** to make the invention work as intended. If the fertilizer of the present invention is used at a rate of more than 3 liters of ferment per ton of fertilizer, the fertilizer agglomerates. Dehydration of the fertilizer disclosed in the present application allows not only to prevent agglomeration at a lower volume of use but also to prevent cellular damage caused to the bacteria by nitrogen solubilized from the hydrated fertilizer.

Thus, as already stated in the January 27, 2010 Amendment, the inventors have discovered a specific way of maintaining bacteria on fertilizer that not only allows instant activation of the bacteria upon rehydration but also allows bacteria to survive during storage and reactivation. Accordingly, the parameter combination of the invention is not a result of mere optimization but a result of inventive mind that resulted in significant and surprising improvement over previously described methods of making fertilizers such as those described by Ergashev/Kuznetsova, Karner-1 and Karner-2 like they were not described by Choi or Mehta.

Applicants respectfully submit that after the Applicants have already overcome issues brought to their attention by the Office, bringing up references that disclose only as much as was disclosed in previous references, which were overcome, is not conducive to an efficient prosecution.

Accordingly, Applicants respectfully submit that the rejection of claims 1-9, 11-16 and 18-22 under 35 USC § 103(a) over Ergashev/Kuznetsova; Karner-1 or Karner-2 should be withdrawn like the identical rejections based on previously cited Choi and Mehta.

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In view of the above, Applicants respectfully submit that all the claims are in condition for allowance. Early and favorable consideration is sincerely solicited.

Applicants believe no fees are currently due with the response. However, in the event that additional fees are due, the Commissioner is hereby is authorized to charge Nixon Peabody Deposit Account No. 50-0850. Any overpayments should also be deposited to said account.

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Respectfully submitted,

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